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DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES #R-36

MEMORANDUM FOR

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Subject:

Accuracy and Coverage Evaluation Survey:
Approval of TES Sample Selection

I. INTRODUCTION

The Targeted Extended Search (TES) is designed to improve the accuracy of the Dual System Estimate (DSE.) TES sampling specifications were developed and implemented to select Accuracy and Coverage Evaluation (A.C.E.) block clusters that would effectively reduce variance without affecting the expectation of the DSE. In the 1990 Post Enumeration Survey (PES), the extended search operation was conducted for all sample block clusters. The results of that operation suggested that it was not necessary to conduct such a complete search, because most clusters contained no errors related to geography. A significant proportion of errors due to geography were corrected through the extended search operation. This type of error tends to be highly concentrated, with most occurring in a relatively small proportion of the total number of clusters in the sample. Targeted Extended Search has been designed to take advantage of this characteristic of the distribution of errors by focusing on those clusters that contain the most potential geocoding errors.

In outline, the targeting and sampling were designed to meet these requirements by:

- Including into the TES with certainty the 5 percent of clusters with the highest total number of potential geocoding errors; both unweighted (a simple count) and then weighted by their respective A.C.E. sampling weights.
- Assigning all relisted and List/Enumerate clusters to be included with certainty during this part of the sampling.

- Drawing a sample consisting of 10 percent of clusters from among those with at least one potential geocoding error.

II. BACKGROUND

The TES sample is drawn after the Initial Housing Unit Matching operation and before Large Block Cluster Subsampling. The housing unit counts available for the sampling operation are the most current counts with the exceptions of relisted clusters, L/E clusters and large blocks. Housing unit counts for relisted and L/E clusters were not available at the time of TES sampling. In the case of the large blocks, our HU counts and weights represent the values before the sub-sampling, which will select a certain sampling fraction of the units and re-weight the rest accordingly. Because the large-block sub-sampling is independent of TES, the expected weighted count of TES housing units in those clusters is the same before and after the large block sub-sampling. The unweighted count, however, will be reduced for these clusters because some of the TES units will be sub-sampled out.

Potential geocoding errors are identified from the results of the initial housing unit matching operations, including the after matching housing unit follow-up. The housing units included on the census address list (or DMAF) as of January 2000 and the addresses for housing units in the A.C.E. block clusters from the Independent Listing are computer matched. The computer matching is followed by an automated clerical review and housing unit field follow-up. These operations identify potential geocoding error. Potential geocoding errors include:

- Census housing units erroneously geocoded into the A.C.E. block cluster (GE)
- Addresses in the Independent Listing that did not match to a DMAF address (CI)
- Unresolved address non-match in the Independent Listing (UI)

The match codes represent the potential geocode errors because they are the results that would be seen when a geocode error is made. A geocode error of inclusion (including a Census housing unit in the A.C.E. cluster that is actually outside the cluster) would be recorded in the housing unit (HU) follow-up form as being in a surrounding block. When a geocode error of exclusion occurs (not including in the A.C.E. cluster a unit that is in the cluster) the unit would be included in the Independent Listing for the cluster and would not be matched in the initial HU matching. Therefore, units showing the above match codes are potential geocode errors and hence are candidates for TES if the block they are in is included in the TES sample.

At the time of TES sampling, the initial housing unit matching had not been performed in relist and List/Enumerate (L/E) clusters. Thus, relisted and L/E block clusters were not part of the sampling universe. However, the number of relist clusters was included in the base to determine the total sample size. For sample size calculation the base used was 10,883 and 499 block clusters in the United States and Puerto Rico, respectively.

III. RESULTS

Table I (attached) describes the data used in the TES selection and sampling. There were 11,303 block clusters included in the A.C.E. sample for the United States. Of these, 544 were selected for inclusion with certainty in TES based on the weighted and 544 based on the unweighted criteria. There were 62 relist clusters, 420 List/Enumerate clusters and 4,407 clusters that contained no geocode errors (that is GE, CI, and UI.) That left 5,326 clusters eligible to be included by sampling of which 1,089 were selected with a take-every approximately equal to 4.89.

In Puerto Rico, which contained 499 A.C.E. clusters, there were 50 clusters included in TES with certainty and 50 included in the sample. There were 14 relist and no List/Enumerate clusters. The take-every for Puerto Rico was 7.2.

Tables 2a through 2f give the distribution of potential geocoding errors in the A.C.E. for both the United States and Puerto Rico. In each case, a large proportion of clusters contained no errors, and a high percentage of the errors occurred in a small fraction of the clusters. For instance, the distribution of geocoding errors in the United States (Table 2a) included 8,071 clusters or 75 percent which contained no errors (percentage excludes the L/E and Relist clusters for which we do not have data on potential geocode errors). On the other hand, there was one cluster with 450 errors and others with 400, 382 and 358. The data show that the worst 1 percent of the clusters contained 43 percent of all the errors. The worst 5 percent of clusters contained 81 percent of the errors, and the worst 10 percent contained 93 percent of the errors. Similar results can be found in the other tables 2b-2f. The highly concentrated nature of geographic errors is the basis for performing TES in only 20 percent of the A.C.E. clusters.

Tables 3a-3b show the distribution of the most common types of errors on a weighted and unweighted basis, for each type of enumeration area, in the United States and Puerto Rico. They show that the approach taken in TES does in fact result in the capture of a large fraction of the errors. Table 3a shows that 36,195 out of the 45,053 DMAF geocode errors (80 percent) in the U.S. were included in TES, as were 65,565 of the 86,196 potential errors in the IL. The systematic sample contained 2,106 of the DMAF errors and 5,516 of the potential IL errors.

IV. APPROVAL

The 1990 TES selection has produced a sample which contained about 76 percent of the overall potential geocoding error. All the sampling parameters were reviewed and found to be correct. **Therefore, we endorse the approval of this sample for Census 2000 TES operations.** The TES sample was officially approved on May 18, 2000.

cc:

DSSD Census 2000 Procedures and Operations Memorandum Series Distribution List
Variance Estimation Branch

Table I
Final Values of TES Sampling Parameters

	U.S.	P.R.
A.C.E. Clusters	11,303	499
L/E Clusters	420	
Relist Clusters	62	14
No TES Housing Units	4,407	75
Unweighted Certainty Selection		
Per cent*	0.05	0.05
Count	544	25
Weighted Certainty Selection		
Per cent*	0.05	0.05
Count	544	25
Systematic Sampling Selection		
Eligible for Sampling	5,326	360
Sample Size	1,089	50
Sample Take-every	4.89073	7.20000
Total TES Sample Size	2,177	100
Total TES Pct.*	0.20	0.20

* The base for the TES selection percentages excludes L/E Clusters
United States

TES Criterion	Count	Percent
No TES HU's	4407	38.99
Not Selected	4237	37.49
List/Enumerate	420	3.72
Relist	62	0.55
Sampled in	1089	9.63
Unwgtd. Certain	544	4.81
Weighted Certain	544	4.81
Total	11,303	100.00

Puerto Rico

TES Criterion	Count	Percent
No TES HU's	75	15.03
Not Selected	310	62.12
Relist	14	2.81
Sampled in	50	10.02
Unwgtd. Certain	25	5.01
Weighted Certain	25	5.01
Total	499	100.00

Table 2a
Number of Geocoding Errors by ACE Block Cluster

Count per Cluster	# of Clusts	United States (DMAF)				Cumulative Per Cent		
		Total Count	Total Weight	Blocks	Cumulative Count	Weight	Block Count	HU Count
450	1	450	24,770	1	450	24,770	0.01	1.00
400	1	400	14,998	2	850	39,768	0.02	1.89
382	1	382	25,463	3	1,232	65,231	0.03	2.73
358	1	358	23,863	4	1,590	89,094	0.04	3.53
343	1	343	37,079	5	1,933	126,173	0.05	4.29
340	2	680	50,628	7	2,613	176,800	0.06	5.80
336	1	336	16,213	8	2,949	193,014	0.07	6.55
332	1	332	24,873	9	3,281	217,886	0.08	7.28
319	1	319	10,647	10	3,600	228,534	0.09	7.99
314	1	314	12,114	11	3,914	240,647	0.10	8.69
312	1	312	15,055	12	4,226	255,702	0.11	9.38
311	2	622	21,997	14	4,848	277,700	0.13	10.76
250-299	8	2,146	81,606	22	6,994	359,305	0.20	15.52
200-249	11	2,418	140,749	33	9,412	500,054	0.30	20.89
150-199	23	3,897	173,243	56	13,309	673,298	0.52	29.54
100-149	52	6,229	312,616	108	19,538	985,913	1.00	43.37
50-99	106	7,573	486,774	214	27,111	1,472,687	1.98	60.18
25-49	178	6,157	733,427	392	33,268	2,206,115	3.62	73.84
24	12	288	29,449	404	33,556	2,235,563	3.73	74.48
23	13	299	31,745	417	33,855	2,267,308	3.85	75.14
22	16	352	63,624	433	34,207	2,330,932	4.00	75.93
21	13	273	46,048	446	34,480	2,376,980	4.12	76.53
20	15	300	63,832	461	34,780	2,440,812	4.26	77.20
19	18	342	48,100	479	35,122	2,488,912	4.43	77.96
18	21	378	61,952	500	35,500	2,550,864	4.62	78.80
17	26	442	83,199	526	35,942	2,634,064	4.86	79.78
16	29	464	75,131	555	36,406	2,709,194	5.13	80.81
15	42	630	93,597	597	37,036	2,802,791	5.52	82.21
14	30	420	95,386	627	37,456	2,898,178	5.79	83.14
13	27	351	69,489	654	37,807	2,967,666	6.04	83.92
12	33	396	73,036	687	38,203	3,040,703	6.35	84.80
11	45	495	93,053	732	38,698	3,133,756	6.76	85.89
10	62	620	146,887	794	39,318	3,280,642	7.34	87.27
9	72	648	121,437	866	39,966	3,402,079	8.00	88.71
8	67	536	85,726	933	40,502	3,487,805	8.62	89.90
7	81	567	130,257	1,014	41,069	3,618,061	9.37	91.16
6	105	630	129,023	1,119	41,699	3,747,084	10.34	92.56
5	107	535	123,964	1,226	42,234	3,871,048	11.33	93.74
4	175	700	172,925	1,401	42,934	4,043,972	12.95	95.30
3	197	591	153,283	1,598	43,525	4,197,255	14.77	96.61
2	376	752	189,002	1,974	44,277	4,386,257	18.24	98.28
1	776	776	217,722	2,750	45,053	4,603,979	25.41	100.00
0	8,071	0	0	10,821	45,053	4,603,979	100.00	100.00
L/E	420	0	0	11,241	45,053	4,603,979		
Relists	62	0	0	11,303	45,053	4,603,979		

Table 2b
Number of Geocoding Errors by ACE Block Cluster

Att. Pg. 3

Count per Cluster	# of Clusts	Puerto Rico (DMAF)				Cumulative Per Cent			
		Total Count	Total Weight	Cumulative Blocks	Cumulative Count	Cumulative Weight	Block Count	HU Count	HU Weight
317	1	317	5,249	1	317	5,249	0.21	13.57	8.32
210	1	210	3,477	2	527	8,727	0.41	22.56	13.84
131	1	131	2,169	3	658	10,896	0.62	28.17	17.28
120	1	120	1,987	4	778	12,883	0.82	33.30	20.43
115	1	115	1,904	5	893	14,788	1.03	38.23	23.45
106	1	106	1,755	6	999	16,543	1.24	42.77	26.23
100	1	100	1,656	7	1,099	18,199	1.44	47.05	28.86
94	1	94	1,557	8	1,193	19,755	1.65	51.07	31.32
71	1	71	1,176	9	1,264	20,931	1.86	54.11	33.19
62	1	62	1,027	10	1,326	21,958	2.06	56.76	34.82
57	1	57	944	11	1,383	22,902	2.27	59.20	36.31
52	1	52	4,817	12	1,435	27,718	2.47	61.43	43.95
49	1	49	4,539	13	1,484	32,257	2.68	63.53	51.15
36	1	36	596	14	1,520	32,853	2.89	65.07	52.09
35	2	70	1,159	16	1,590	34,012	3.30	68.07	53.93
32	1	32	530	17	1,622	34,542	3.51	69.43	54.77
30	1	30	497	18	1,652	35,039	3.71	70.72	55.56
28	1	28	464	19	1,680	35,503	3.92	71.92	56.29
25	3	75	3,144	22	1,755	38,646	4.54	75.13	61.28
24	2	48	2,620	24	1,803	41,267	4.95	77.18	65.43
23	1	23	2,130	25	1,826	43,397	5.15	78.17	68.81
21	2	42	695	27	1,868	44,093	5.57	79.97	69.91
20	1	20	331	28	1,888	44,424	5.77	80.82	70.44
19	2	38	2,075	30	1,926	46,498	6.19	82.45	73.73
18	4	72	3,931	34	1,998	50,429	7.01	85.53	79.96
15	1	15	248	35	2,013	50,677	7.22	86.17	80.35
14	1	14	232	36	2,027	50,909	7.42	86.77	80.72
13	1	13	215	37	2,040	51,125	7.63	87.33	81.06
12	2	24	397	39	2,064	51,522	8.04	88.36	81.69
11	2	22	364	41	2,086	51,886	8.45	89.30	82.27
10	3	30	1,257	44	2,116	53,144	9.07	90.58	84.26
9	2	18	298	46	2,134	53,442	9.48	91.35	84.74
8	2	16	265	48	2,150	53,707	9.90	92.04	85.16
7	2	14	232	50	2,164	53,939	10.31	92.64	85.52
6	3	18	1,211	53	2,182	55,150	10.93	93.41	87.44
5	5	25	794	58	2,207	55,944	11.96	94.48	88.70
4	7	28	1,681	65	2,235	57,625	13.40	95.68	91.37
3	13	39	2,015	78	2,274	59,640	16.08	97.35	94.56
2	13	26	1,495	91	2,300	61,135	18.76	98.46	96.93
1	36	36	1,933	127	2,336	63,068	26.19	100.00	100.00
0	358	0	0	485	2,336	63,068	100.00	100.00	100.00
Relists	14	0	0	499	2,336	63,068			

Table 2c
Number of Potential Geocoding Errors by ACE Block Cluster

Att. Pg. 4

Count per Cluster	# of Clusts	United States (IL)				Cumulative				Cumulative Per Cent		
		Total Count	Total Weight	Blocks	Cumulative Count	Weight	Block Count	HU Count	HU Weight	Block Count	HU Count	HU Weight
1,093	1	1,093	118,155	1	1,093	118,155	0.01	1.41	1.19			
878	1	878	39,708	2	1,971	157,864	0.02	2.55	1.59			
821	1	821	30,977	3	2,792	188,841	0.03	3.61	1.90			
627	1	627	90,708	4	3,419	279,549	0.04	4.42	2.82			
608	1	608	42,168	5	4,027	321,717	0.05	5.21	3.24			
504	1	504	24,873	6	4,531	346,590	0.06	5.86	3.49			
488	1	488	26,176	7	5,019	372,767	0.06	6.49	3.75			
485	1	485	20,442	8	5,504	393,209	0.07	7.11	3.96			
420	1	420	16,223	9	5,924	409,432	0.08	7.66	4.12			
396	1	396	14,878	10	6,320	424,309	0.09	8.17	4.27			
350-382	1	382	14,413	14	6,702	438,723	0.13	8.66	4.42			
300-349	1	379	94,223	15	7,081	532,946	0.14	9.15	5.37			
250-299	1	374	29,032	16	7,455	561,978	0.15	9.64	5.66			
200-249	2	361	24,820	18	7,816	586,798	0.17	10.10	5.91			
150-199	1	342	66,186	19	8,158	652,983	0.18	10.54	6.58			
100-149	1	321	11,599	20	8,479	664,582	0.18	10.96	6.69			
50-99	2	616	23,327	22	9,095	687,909	0.20	11.76	6.93			
25-49	18	432	45,506	23	9,395	699,228	0.21	12.14	7.04			
24	18	432	45,506	677	52,848	4,813,616	6.26	68.31	48.49			
23	26	598	94,005	703	53,446	4,907,621	6.50	69.08	49.43			
22	27	594	82,033	730	54,040	4,989,654	6.75	69.85	50.26			
21	37	777	111,648	767	54,817	5,101,303	7.09	70.85	51.38			
20	30	600	110,893	797	55,417	5,212,196	7.37	71.63	52.50			
19	49	931	149,613	846	56,348	5,361,809	7.82	72.83	54.01			
18	47	846	131,797	893	57,194	5,493,607	8.25	73.93	55.34			
17	40	680	83,331	933	57,874	5,576,937	8.62	74.80	56.18			
16	47	752	115,681	980	58,626	5,692,618	9.06	75.78	57.34			
15	63	945	153,822	1,043	59,571	5,846,441	9.64	77.00	58.89			
14	74	1,036	170,947	1,117	60,607	6,017,388	10.32	78.34	60.61			
13	80	1,040	224,375	1,197	61,647	6,241,763	11.06	79.68	62.87			
12	84	1,008	161,567	1,281	62,655	6,403,330	11.84	80.98	64.50			
11	115	1,265	267,421	1,396	63,920	6,670,751	12.90	82.62	67.19			
10	129	1,290	229,993	1,525	65,210	6,900,744	14.09	84.29	69.51			
9	119	1,071	204,223	1,644	66,281	7,104,967	15.19	85.67	71.57			
8	139	1,112	217,047	1,783	67,393	7,322,015	16.48	87.11	73.75			
7	180	1,260	263,347	1,963	68,653	7,585,361	18.14	88.74	76.41			
6	192	1,152	242,083	2,155	69,805	7,827,444	19.91	90.23	78.84			
5	268	1,340	317,895	2,423	71,145	8,145,339	22.39	91.96	82.05			
4	378	1,512	374,167	2,801	72,657	8,519,506	25.88	93.91	85.82			
3	555	1,665	453,558	3,356	74,322	8,973,064	31.01	96.06	90.38			
2	802	1,604	479,246	4,158	75,926	9,452,310	38.43	98.14	95.21			
1	1,441	1,441	475,404	5,599	77,367	9,927,714	51.74	100.00	100.00			
0	5,222	0	0	10,821	77,367	9,927,714	100.00	100.00	100.00			
L/E Relist	420	5,918	432,575	11,241	83,285	10,360,289						
	62	0	0	11,303	83,285	10,360,289						

Table 2d

Att. Pg. 5

Number of Potential Geocoding Errors by ACE Block Cluster

Count per Cluster	# of Clusts	Puerto Rico (IL)				Cumulative Per Cent		
		Total Count	Total Weight	Cumulative Blocks	Cumulative Count	Cumulative Weight	Block Count	HU Count
431	1	431	7,137	1	431	7,137	0.21	4.40
352	1	352	5,829	2	783	12,966	0.41	8.00
346	1	346	5,730	3	1,129	18,696	0.62	11.53
312	1	312	5,167	4	1,441	23,862	0.82	14.71
234	1	234	3,875	5	1,675	27,737	1.03	17.10
219	1	219	20,285	6	1,894	48,022	1.24	19.34
212	1	212	3,511	7	2,106	51,533	1.44	21.51
204	1	204	3,378	8	2,310	54,911	1.65	23.59
198	1	198	3,279	9	2,508	58,190	1.86	25.61
179	1	179	2,964	10	2,687	61,154	2.06	27.44
100-114	6	629	25,782	16	3,316	86,935	3.30	33.86
75-99	12	1,003	16,609	28	4,319	103,544	5.77	44.10
50-74	16	970	20,246	44	5,289	123,791	9.07	54.01
25-49	69	2,405	73,371	113	7,694	197,162	23.30	78.57
24	6	144	2,385	119	7,838	199,547	24.54	80.04
23	2	46	4,261	121	7,884	203,807	24.95	80.51
22	2	44	729	123	7,928	204,536	25.36	80.96
21	4	84	4,586	127	8,012	209,122	26.19	81.81
20	2	40	2,184	129	8,052	211,306	26.60	82.22
19	6	114	3,333	135	8,166	214,639	27.84	83.39
18	6	108	5,896	141	8,274	220,535	29.07	84.49
17	3	51	3,431	144	8,325	223,966	29.69	85.01
16	9	144	4,819	153	8,469	228,784	31.55	86.48
15	6	90	3,772	159	8,559	232,557	32.78	87.40
14	8	112	7,179	167	8,671	239,736	34.43	88.54
13	8	104	3,700	175	8,775	243,436	36.08	89.60
12	5	60	1,906	180	8,835	245,342	37.11	90.22
11	10	110	6,842	190	8,945	252,184	39.18	91.34
10	9	90	4,211	199	9,035	256,395	41.03	92.26
9	9	81	5,449	208	9,116	261,844	42.89	93.09
8	15	120	5,381	223	9,236	267,225	45.98	94.31
7	10	70	4,886	233	9,306	272,112	48.04	95.03
6	20	120	7,464	253	9,426	279,576	52.16	96.25
5	15	75	4,665	268	9,501	284,241	55.26	97.02
4	23	92	7,305	291	9,593	291,545	60.00	97.96
3	26	78	6,569	317	9,671	298,115	65.36	98.75
2	36	72	4,353	353	9,743	302,467	72.78	99.49
1	50	50	4,262	403	9,793	306,729	83.09	100.00
0	82	0	0	485	9,793	306,729	100.00	100.00
Relists	14	0	0	499	9,793	306,729	100.00	100.00

Table 2e
Number of Potential Geocoding Errors by ACE Block Cluster

Count per Cluster	# of Clusts	United States (DMAF and IL)						Cumulative Per Cent		
		Total Count	Total Weight	Cumulative Blocks	Cumulative Count	Cumulative Weight	Block Count	HU Count	HU Weight	
1,436	1	1,436	155,234	1	1,436	155,234	0.01	1.17	1.07	
881	1	881	39,844	2	2,317	195,078	0.02	1.89	1.34	
821	1	821	30,977	3	3,138	226,055	0.03	2.56	1.56	
627	1	627	90,708	4	3,765	316,764	0.04	3.08	2.18	
608	1	608	42,168	5	4,373	358,932	0.05	3.57	2.47	
522	1	522	40,521	6	4,895	399,453	0.06	4.00	2.75	
504	1	504	24,873	7	5,399	424,326	0.06	4.41	2.92	
488	1	488	26,176	8	5,887	450,502	0.07	4.81	3.10	
487	1	487	20,526	9	6,374	471,028	0.08	5.21	3.24	
484	1	484	32,262	10	6,858	503,290	0.09	5.60	3.46	
450	1	450	24,770	11	7,308	528,060	0.10	5.97	3.63	
400-449	3	1,232	45,710	14	8,540	573,770	0.13	6.98	3.95	
350-399	9	3,317	261,173	23	11,857	834,943	0.21	9.69	5.75	
300-349	16	5,120	314,893	39	16,977	1,149,836	0.36	13.87	7.91	
250-299	17	4,502	359,997	56	21,479	1,509,832	0.52	17.55	10.39	
200-249	27	5,904	346,523	83	27,383	1,856,356	0.77	22.37	12.77	
150-199	65	11,263	798,579	148	38,646	2,654,935	1.37	31.57	18.27	
100-149	125	14,812	1,017,124	273	53,458	3,672,059	2.52	43.67	25.27	
50-99	317	22,386	2,049,682	590	75,844	5,721,741	5.45	61.95	39.37	
25-49	464	16,023	2,158,353	1,054	91,867	7,880,094	9.74	75.04	54.23	
24	33	792	115,532	1,087	92,659	7,995,627	10.05	75.69	55.02	
23	34	782	104,729	1,121	93,441	8,100,356	10.36	76.33	55.74	
22	44	968	202,105	1,165	94,409	8,302,461	10.77	77.12	57.13	
21	46	966	123,170	1,211	95,375	8,425,631	11.19	77.91	57.98	
20	51	1,020	190,270	1,262	96,395	8,615,901	11.66	78.74	59.29	
19	62	1,178	248,326	1,324	97,573	8,864,227	12.24	79.70	61.00	
18	66	1,188	230,310	1,390	98,761	9,094,537	12.65	80.67	62.58	
17	56	952	173,228	1,446	99,713	9,267,765	13.36	81.45	63.78	
16	69	1,104	193,709	1,515	100,817	9,461,474	14.00	82.35	65.11	
15	89	1,335	225,705	1,604	102,152	9,687,180	14.82	83.44	66.66	
14	93	1,302	228,350	1,697	103,454	9,915,530	15.68	84.51	68.23	
13	106	1,378	261,823	1,803	104,832	10,177,353	16.66	85.63	70.04	
12	107	1,284	225,576	1,910	106,116	10,402,929	17.65	86.68	71.59	
11	132	1,452	317,101	2,042	107,568	10,720,030	18.87	87.87	73.77	
10	152	1,520	284,633	2,194	109,088	11,004,663	20.28	89.11	75.73	
9	146	1,314	266,831	2,340	110,402	11,271,494	21.62	90.18	77.56	
8	175	1,400	293,536	2,515	111,802	11,565,030	23.24	91.33	79.58	
7	195	1,365	311,104	2,710	113,167	11,876,135	25.04	92.44	81.73	
6	248	1,488	349,112	2,958	114,655	12,225,247	27.34	93.66	84.13	
5	280	1,400	372,309	3,238	116,055	12,597,556	29.92	94.80	86.69	
4	412	1,648	453,919	3,650	117,703	13,051,475	33.73	96.15	89.81	
3	575	1,725	491,677	4,225	119,428	13,543,152	39.04	97.56	93.20	
2	803	1,606	506,090	5,028	121,034	14,049,242	46.47	98.87	96.68	
1	1,386	1,386	482,451	6,414	122,420	14,531,693	59.27	100.00	100.00	
0	4,407	0	0	10,821	122,420	14,531,693	100.00	100.00	100.00	
L/E Relist	420	5,918	432,575	11,241	128,338	14,964,268				
	62	0	0	11,303	128,338	14,964,268				

Table 2f
Number of Potential Geocoding Errors by ACE Block Cluster

Att. Pg. 7

Count per Cluster	# of Clusts	Puerto Rico (DMAF and IL)				Cumulative Per Cent		
		Total Count	Total Weight	Cumulative Blocks	Cumulative Count	Cumulative Weight	Block Count	HU Count
432	1	432	7,154	1	432	7,154	0.21	3.56
376	1	376	6,226	2	808	13,380	0.41	6.66
346	1	346	5,730	3	1,154	19,110	0.62	9.51
331	1	331	5,481	4	1,485	24,591	0.82	12.24
312	1	312	5,167	5	1,797	29,757	1.03	14.82
296	1	296	4,902	6	2,093	34,659	1.24	17.26
243	1	243	4,024	7	2,336	38,683	1.44	19.26
219	1	219	20,285	8	2,555	58,968	1.65	21.07
212	2	424	7,021	10	2,979	65,989	2.06	24.56
207	1	207	3,428	11	3,186	69,417	2.27	26.27
150-199	2	367	6,077	13	3,553	75,494	2.68	29.29
100-149	15	1,706	43,616	28	5,259	119,110	5.77	43.36
50-99	38	2,551	65,063	66	7,810	184,174	13.61	64.39
25-49	65	2,292	74,999	131	10,102	259,173	27.01	83.29
24	5	120	1,987	136	10,222	261,160	28.04	84.28
23	2	46	2,511	138	10,268	263,671	28.45	84.66
22	3	66	2,766	141	10,334	266,438	29.07	85.20
21	5	105	6,531	146	10,439	272,969	30.10	86.07
20	3	60	2,515	149	10,499	275,483	30.72	86.56
19	4	76	2,704	153	10,575	278,187	31.55	87.19
18	6	108	4,527	159	10,683	282,714	32.78	88.08
17	2	34	1,856	161	10,717	284,570	33.20	88.36
16	8	128	5,771	169	10,845	290,341	34.85	89.41
15	6	90	2,631	175	10,935	292,972	36.08	90.16
14	7	98	6,948	182	11,033	299,920	37.53	90.96
13	8	104	3,700	190	11,137	303,620	39.18	91.82
12	5	60	2,819	195	11,197	306,439	40.21	92.32
11	9	99	6,660	204	11,296	313,099	42.06	93.13
10	11	110	6,064	215	11,406	319,163	44.33	94.04
9	6	54	4,317	221	11,460	323,480	45.57	94.48
8	14	112	5,857	235	11,572	329,337	48.45	95.41
7	11	77	5,535	246	11,649	334,872	50.72	96.04
6	18	108	7,265	264	11,757	342,137	54.43	96.93
5	16	80	4,748	280	11,837	346,885	57.73	97.59
4	27	108	8,962	307	11,945	355,847	63.30	98.48
3	22	66	5,554	329	12,011	361,401	67.84	99.03
2	37	74	4,538	366	12,085	365,939	75.46	99.64
1	44	44	3,858	410	12,129	369,797	84.54	100.00
0	75	0	0	485	12,129	369,797	100.00	100.00
Relists	14	0	0	499	12,143	369,797	100.00	100.00

Table 3a
Unweighted TES Characteristics by Type of Enumeration Area

Att. Page 8

Mailout/Mailback		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errors
	Clusters	Housing Units				
Relist	36	4,053	0	0	3,382	0
Certainty	915	139,418	33,426	7,702	144,657	41,281
Sampled	740	75,594	1,859	4,723	71,028	3,484
All TES	1,691	219,065	35,285	12,425	219,067	44,765
TOTAL	7,788	734,425	43,167	43,238	698,810	57,483

Update/Leave		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errors
	Clusters	Housing Units				
Relist	26	195	0	0	215	0
Certainty	167	19,657	657	730	30,260	9,554
Sampled	344	20,855	244	1,049	21,131	1,975
All TES	537	40,707	901	1,779	51,606	11,529
TOTAL	3,038	123,328	1,869	5,368	137,413	19,335

Converted to U/L		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errors
	Clusters	Housing Units				
Relist	0	0	0	0	0	0
Certainty	6	179	6	4	812	385
Sampled	5	319	3	17	354	57
All TES	11	498	9	21	1,166	442
TOTAL	46	1,543	17	78	2,204	549

L/E	420	0	0	0	5,918	5,918
Military	1	0	0	0	0	0

Total US		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errors
	Clusters	Housing Units				
Relist or L/E	482	4,248	0	0	9,515	5,918
Certainty	1,088	159,254	34,089	8,436	175,729	51,220
Sampled	1,089	96,768	2,106	5,789	92,513	5,516
All TES	2,659	260,270	36,195	14,225	277,757	62,654
TOTAL	11,303	859,296	45,053	48,684	844,345	83,285

Puerto Rico		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errors
	Clusters	Housing Units				
Relist	14	590	0	0	745	0
Certainty	50	10,070	1,671	1,445	12,001	4,362
Sampled	50	7,763	62	297	7,638	705
All TES	114	18,423	1,733	1,742	20,384	5,067
TOTAL	499	51,462	2,336	3,338	56,049	9,793

Table 3b
Weighted TES Characteristics by Type of Enumeration Area

Att. Page 9

Mailout/Mailback		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errs
	Clusters	Housing Units				
Relist	36	249,683	0	0	310,127	0
Certainty	915	14,580,910	3,062,293	984,933	16,136,479	5,053,754
Sampled	740	9,032,602	255,113	532,132	8,632,894	477,774
All TES	1,691	23,863,195	3,317,406	1,517,066	25,079,500	5,531,528
TOTAL	7,798	98,638,054	4,312,069	5,337,524	96,239,116	7,304,630
Update/Leave		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errs
	Clusters	Housing Units				
Relist	26	32,089	0	0	62,376	0
Certainty	167	2,574,526	121,079	139,253	3,508,024	1,081,240
Sampled	344	3,193,269	32,239	137,682	3,312,931	302,657
All TES	537	5,799,883	153,318	276,935	6,883,331	1,383,897
TOTAL	3,038	21,195,172	286,244	787,747	22,909,608	2,541,898
Converted to U/L		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errs
	Clusters	Housing Units				
Relist	0	0	0	0	0	0
Certainty	6	64,192	3,461	593	126,906	56,091
Sampled	5	28,338	414	1,918	33,450	7,258
All TES	11	92,530	3,875	2,511	160,355	63,350
TOTAL	46	276,699	5,665	15,673	336,951	81,186
L/E	420	0	0	0	432,575	432,575
Military	1	0	0	0	0	0
Total US		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errs
	Clusters	Housing Units				
Relist or L/E	482	281,772	0	0	805,077	432,575
Certainty	1,088	17,219,627	3,186,833	1,124,780	19,771,409	6,191,086
Sampled	1,089	12,254,208	287,765	671,732	11,979,275	787,689
All TES	2,659	29,755,607	3,474,599	1,796,512	32,555,761	7,411,350
TOTAL	11,303	120,109,925	4,603,979	6,140,944	119,918,250	10,360,289
Puerto Rico		DMAF	Geocode Errors	Erroneous Enums.	Ind. Listing Housing Units	Potential IL Geocode Errs
	Clusters	Housing Units				
Relist	14	29,167	0	0	51,018	0
Certainty	50	249,134	46,155	34,958	347,213	152,255
Sampled	50	171,558	1,483	6,668	172,237	17,238
All TES	114	449,859	47,638	41,626	570,469	169,494
TOTAL	499	1,401,384	63,068	88,194	1,621,159	306,729